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ABSTRACT

We examine the economic consequences of firms' ESG commitments through loan contracts. Using the staggered adoption of the Equator Principles (EP), an ESG management framework in banking, we find that commercial loans from the largest U.S. banks adopting the EP (EP loans) are associated with significant reductions in loan spreads, especially when lenders have greater project finance expertise and operate in more competitive markets. EP loans also include more environmental covenants that are actively enforced via renegotiations and terminations. Furthermore, borrowers' cost of equity declines, and their environmental performance improves. Overall, our findings suggest that credible ESG commitments in debt contracting reduce firms' overall cost of capital.

***Keywords*:** Cost of Debt, Cost of Equity, Credible Commitment, ESG, Environmental Covenants, the Equator Principles

JEL Classification: D82, G21, G32

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1. Introduction

We investigate firms' credible environmental, social, and governance (ESG) commitments made through loan contracts in response to the rise of ESG investing. ESG investing—the incorporation of ESG factors into portfolio decisions—has grown substantially, reaching over US$30 trillion in assets worldwide by 2022.[1] ESG equity and debt investors typically seek to avoid or reduce exposure to investments with ESG concerns. When such firms become less able to share their risks with their investor base, theory suggests they face an increased cost of capital (e.g., Merton 1987, Heinkel, Kraus, and Zechner 2001, Friedman and Heinle 2016). Consistently, empirical research shows that a firm's exposure to ESG concerns, particularly environmental concerns, increases its cost of equity and debt (e.g., Hong and Kacperczyk 2009, Goss and Roberts 2011, Chava 2014, Matsumura, Prakash, and Vera-Muñoz 2014, Hoepner, Oikonomou, Sautner, Starks, and Zhou 2024).

Although firms can, in principle, lower their cost of capital by mitigating ESG risk, it is unclear whether doing so is optimal for firms in equilibrium.[2] One major reason is that the information asymmetry between a firm and its investors may incentivize greenwashing—misleading claims of ESG improvement (Marquis, Toffel, and Zhou 2016). As a result, investors often discount nonbinding initiatives, such as Ceres, that provide weak commitment (Fisher-Vanden and Thorburn 2011). Besides, voluntary carbon-reduction pledges frequently have limited real effects, especially among high emitters (Bolton and Kacperczyk 2021).In 2021, *The New York Times* also highlighted the weak and limited commitments behind companies' voluntary sustainability reports.[3]

[1] https://www.gsi-alliance.org/wp-content/uploads/2023/12/GSIA-Report-2022.pdf.

[2] See Matos [2020] for a review of the extensive debate in the literature on whether ESG policies enhance firm value.

[3] https://www-nytimes-com.cdn.ampproject.org/c/s/www.nytimes.com/2021/02/22/business/energy-environment/corporations-climate-change.amp.html.

We investigate whether private market arrangements—specifically, the Equator Principles (EP)—can serve as a credible commitment device. The EP are an environmental and social risk management framework used to assess and manage environmental and social risks in financial institutions. Although initially designed for project finance, the EP have significantly improved adopters' overall ESG policies, and influenced commercial lending practices (Spitzeck 2009, Conley and Williams 2011, Rupp, Williams, and Aguilera 2011).

Between 2003 and 2006, four of the largest U.S. banks adopted the EP, providing a staggered setting to examine whether borrowers use loan contracts to credibly commit to better ESG practices.[4] The EP enhance monitoring effectiveness in commercial lending by building lender expertise, standardizing environmental covenants, and coordinating practices across banks. Borrowers from EP lenders incur compliance costs to meet these covenants, thereby reducing their environmental risks. Thus, we predict that lenders are likely to share the resulting net efficiency gains with borrowers through lower loan spreads in competitive markets.

To test our prediction, we employ a staggered difference-in-differences (DID) design that exploits variation in the timing of EP adoption. To mitigate potential estimation bias in the staggered DID design, we implement a cohort-based matching procedure and conduct a stacked DID regression (Gormley and Matsa 2011, Bourveau, Lou, and Wang 2018, Goodman-Bacon 2021, Baker, Larcker, and Wang 2022). Specifically, for each adoption event of the four lenders, we create a cohort of loans from the focal lender (treatment lender) and match them with loans from lenders that will adopt the EP later or never adopt (control lenders). We then stack the four cohorts to compare changes in loan

[4] The specific adoption date is as follows: Citi (June 4, 2003), Bank of America (April 15, 2004), Wells Fargo (July 12, 2005), and J.P. Morgan (December 4, 2006).

contracts before and after EP adoption (first difference) across treatment versus control lenders (second difference).

Using this stacked DID design, we find that firms borrowing from treatment lenders experience a significant reduction in loan spreads relative to the change for firms borrowing from control lenders for loans issued between 2001 and 2007.[5] This finding supports our prediction that borrowers credibly commit to ESG practices through EP loans, which lenders reward with lower loan spreads. Parallel pre-trends in loan spreads for treatment and control lenders further strengthen the validity of our design.

While self-selection into EP lenders may occur, this selection is itself a signaling channel: borrowers willing to incur compliance costs to convey their environmental commitment. EP lenders, in turn, can screen borrowers based on their willingness to accept these costs. Nevertheless, we address potential self-selection problems—where borrowers with stronger ESG profiles may preferentially borrow from EP lenders—by showing that our results hold when including cohort-borrower fixed effects and when restricting to firms borrowing from the same lender both before and after EP adoption.

We perform several cross-sectional tests. First, the reduction in loan spreads is greater when lenders have project-finance experience, consistent with EP-driven expertise transfers to corporate lending and help mitigate borrowers' environmental risks. Second, the decrease is stronger in more competitive loan markets, suggesting that competitive pressures encourage lenders to share efficiency gains with borrowers.

We next examine whether EP loans from treatment lenders contain more environmental

[5] We restrict the sample to loans issued between 2001 and 2007 for both treatment and control lenders to avoid extending the analysis into the global financial crisis period. As a robustness check, we re-estimate our main results using an extended sample through 2008, allowing for two years before and after the 2003–2006 adoption events. Despite the global financial crisis, the results remain essentially unchanged (untabulated).

covenants relative to loans from control lenders. Relative to control lenders, treatment lenders are more likely after adoption to include environmental covenants, to extend their length, and to include multiple such covenants. Breaking covenants down into the three types identified by Choy, Jiang, Liao, and Wang (2023)—environmental disclosure, environmental audit, and environmental action—we find significant increases in all three categories.[6]

Because more restrictive covenants shift ex post bargaining power to lenders and are renegotiated more frequently (Huberman and Kahn 1988, Aghion, Dewatripont, and Rey 1994, Li, Vasvari, and Wittenberg-Moerman 2016), stringent environmental covenants plausibly raise the incidence of violation-triggered renegotiations and early recalls when remediation is costly or delayed. Consistent with this mechanism, we document a significantly higher likelihood of loan renegotiations and terminations when environmental covenants are present, suggesting that EP lenders' post-adoption expertise and standardized practices enable more effective enforcement. These enforcement frictions impose substantial costs on "brown" borrowers unlikely to improve ESG performance, thereby deterring them from mimicking genuinely ESG-committed firms.

Finally, we predict and find that borrowers from EP lenders experience a lower implied cost of equity and improve their environmental performance. These results align with evidence associating better environmental risk management with reduced cost of equity capital (e.g., Sharfman and Fernando 2008) and reinforce the role of stringent covenants as credible signals (Li et al. 2016). Improved environmental performance also complements our evidence on covenant intensity and lower loan

[6] Specifically, environmental disclosure covenants are covenants that require borrowers to give timely notice or report to lenders regarding environmental performance. Environmental audit covenants are covenants where lenders demand the independent auditing of or consulting on borrowers' environmental practices. Environmental action covenants are covenants that require borrowers to clean up environmental pollution.

spreads, suggesting that borrowers' signals are ultimately validated by real performance gains.

Our paper contributes in three ways. First, we extend the literature on banks as delegated monitors (Diamond 1984, Fama 1985, Diamond 1991) by examining their monitoring of the borrowers' ESG practices, which has been largely underexplored. Prior research highlights covenants as mechanisms to mitigate borrower opportunism and moral hazard (Nini, Smith, and Sufi 2009, Bradley and Roberts 2015). We demonstrate that lenders design and enforce environmental covenants that reduce borrowers' ESG-related risk exposures. Our analysis complements studies that link regulatory enforcement to private monitoring (Lee and Zakota 2024, Choy, Jiang, Liao, and Wang 2023) by focusing on voluntary contractual mechanisms through which firms credibly commit to ESG practices in commercial lending. Our focus also differs from Wang (2023), who studies ESG performance in U.S. firms borrowing from non-U.S. banks subject to CSR disclosure rules.

Second, We contribute to the literature on credible commitment and bonding by examining loan covenants under the Equator Principles as a new setting for firms to make credible sustainability commitments (Williamson 1983, Coffee 1999, Stulz 1999, Reese and Weisbach 2002, Doidge, Karolyi, and Stulz 2004, Hail and Leuz 2009). While prior studies find that green bonds can serve as credible commitments to reducing environmental risk (Flammer 2021, Lu 2025), issuance is limited to a small subset of firms and often relies on reputational channels. By contrast, commercial lending applies to a much broader borrower base and embeds enforceable obligations that are costly to renege on. Moreover, banks possess unique advantages as monitors because of their direct access to proprietary information and stronger contractual control (Fama 1985, Diamond 1991, Nikolaev 2010), which allow loan contracts to function as a more stringent and credible bonding mechanism than market-based ESG

pledges or voluntary sustainability reports.Third, we contribute to the debate on the effects of ESG commitments on firm value (Christensen, Hail, and Leuz 2021). One view holds that ESG initiatives can reflect agency problems (Tirole 2001, Benabou and Tirole 2010, Cheng, Hong, and Shue 2013), benefiting managers by enhancing their reputations with stakeholders while potentially reducing firm value for shareholders. An alternative "doing well by doing good" perspective suggests that ESG can increase shareholder wealth when projects have positive net present value (Dowell, Hart, and Yeung 2000, Derwall, Guenster, Bauer, and Koedijk 2005, Edmans 2011, Flammer 2013, Servaes and Tamayo 2013, Dimson, Karakas, and Li 2015). Our evidence supports the latter perspective by showing that contractualized ESG commitments facilitated by EP adoption and covenant enforcement are associated with both financing benefits and real ESG performance gains.

2. Institutional Background and Conceptual Framework

2.1. The Equator Principles

The Equator Principles (EP) are a voluntary environmental, social, and governance (ESG) risk management framework introduced in 2003 by a coalition of leading international banks. Their adoption was partly a response to a legitimacy crisis in the U.S. banking sector, following sustained criticism from the Rainforest Action Network (RAN). Citi, the founding bank, drafted the EP in 2003 (Online Appendix A, Panel A). By January 2023, 138 financial institutions across 38 countries had adopted the EP, making them a quasi-industry standard for ensuring that financed projects meet specific environmental and social benchmarks.[7]

The EP serve as a coordination mechanism among adopting banks, standardizing environmental

[7] The Equator Principles comprise ten core principles: (1) review and categorization; (2) environmental and social assessment; (3) applicable environmental and social standards; (4) environmental and social management system and Equator Principles action plan; (5) stakeholder engagement; (6) grievance mechanism; (7) independent review; (8) covenants; (9) independent monitoring and reporting; and (10) reporting and transparency.

risk assessment and management practices, reducing competitive imbalances, and enabling best practice sharing. Although adoption is voluntary, the EP are particularly attractive to large banks that hold a substantial share of loan market transactions, which amplifies the framework's influence.[8]

Importantly, adoption has reshaped environmental governance at the bank level, extending well beyond project finance (Online Appendix A, Panel B). EP lenders have established comprehensive ESG frameworks, invested in hiring and training specialized personnel, and applied environmental screening to other areas such as underwriting, corporate lending, and retail banking (Spitzeck 2009, Conley and Williams 2011, Rupp et al. 2011). Citi and J.P. Morgan, for example, explicitly state that their environmental policies are largely derived from the EP, with coverage extending to corporate lending. Citi's report notes that "This ESRM Policy and the risk categorization criteria were derived largely from the Equator Principles", and transactions covered under their ESRM Policy encompass "Corporate loans and debt securities underwritings greater than $50 million".[9]

The adoption of the EP also generates reputational benefits. Initially developed during a period of intense NGO scrutiny (Online Appendix A, Panel A), the EP remain subject to monitoring by groups such as BankTrack.[10] This visibility, combined with the high cost of implementing environmental frameworks, discourages banks' superficial compliance or "greenwashing." As a result, lenders are positioned as credible enforcers of borrowers' sustainability commitments.

Anecdotal evidence in Online Appendix B, Panel B (for NCI Building Systems, Inc.) illustrates

[8] Large banks are especially inclined to adopt the EP because they face greater NGO and media scrutiny (Wright and Rwabizambuga 2006, Spitzeck 2007, 2009; see also Online Appendix A, Panel A), carry substantial undiversifiable ESG risks (Coffee 2021) that can be mitigated through their loan portfolios, and can more readily absorb the costs of adoption.

[9] https://www.citigroup.com/rcs/citigpa/akpublic/storage/public/global_2004_english.pdf. Accessed by September 2022.

[10] https://www.banktrack.org/ourproject/tracking_the_equator_principles.

the effect of EP adoption on the loan contract design. Prior to adoption, Bank of America's loan contract with NCI included only limited environmental provisions. Post-adoption, the contract contained expanded environmental clauses, including disclosure and action covenants.

2.2. The Credible Commitment Mechanism and Testable Implications

For borrowers, loans issued under the Equator Principles (EP) offer a stronger and more credible commitment mechanism by embedding costly, enforceable obligations directly into loan contracts. Borrowers are required to meet stringent compliance standards, including preparing extensive documentation, undergoing independent audits, addressing identified deficiencies, and implementing tangible operational improvements. Failure to comply can trigger loan renegotiation or early termination, making the arrangement difficult for high-risk "brown" firms to imitate. These credible commitments also offer significant benefits. They reduce exposure to environmental risks, limit potential legal liabilities from severe environmental events, and enhance access to capital by attracting ESG-oriented investors (De Angelis, Tankov, and Zerbib 2023).

From the lender's perspective, the mechanism demands active oversight, such as reviewing documentation, assessing inspection reports, and enforcing environmental covenants. It also delivers important advantages from a reduction in environmental risks in the portfolio. These advantages include lower default risks, particularly because environmental cleanup claims can be senior to bank debt (Dai, Macciocchi, and Morris 2024), and reduced litigation exposure under lender liability laws such as the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Large banks gain the additional advantage of lowering undiversifiable ESG risk across their portfolios (Coffee 2021).

Based on the discussion above, we make the following empirical predictions. First, borrowers obtaining loans from EP lenders pay lower loan spreads. Rigorous environmental monitoring ensures

that borrowers' commitments are credible, reducing lenders' exposure to default, reputational, and regulatory risks. In competitive markets, lenders can share these efficiency gains with borrowers through lower pricing. This is consistent with evidence that enhanced monitoring through covenants enables lenders to discipline opportunistic borrower behavior and reduce credit spreads (Gigler, Kanodia, Sapra, and Venugopalan 2009, Nini, Smith, and Sufi 2009, Matvos 2013, Bradley and Roberts 2015).

Second, we predict that EP loans feature more frequent and more comprehensive environmental covenants that can be enforced, allowing borrowers to credibly signal sustainability to stakeholders. Building on evidence that tighter covenants shift ex post bargaining power toward lenders and raise renegotiation incidence (Huberman and Kahn 1988, Aghion et al. 1994, Li et al. 2016), stringent environmental provisions are more likely to turn violations into default events and accelerated repayment when remediation is costly or delayed. Consequently, the expected costs of renegotiation and early termination create a screening mechanism: only firms with genuine, durable environmental commitments can credibly accept these terms, ensuring that commitments are enforceable rather than merely symbolic.

Third, equity investors recognize credible sustainability commitments and require a lower cost of equity capital. Firms with greater environmental risk face higher equity financing costs (Hong and Kacperczyk 2009), while credible commitments attract ESG-oriented investors, broaden the investor base, and reduce perceived risk (De Angelis et al. 2023). Thus, robust ESG practices are associated with lower equity costs, as markets reward transparency and risk mitigation (Matsumura et al. 2014, Hoepner et al. 2024).

Finally, borrowers' environmental performance improves after engaging with EP lenders. This is because adherence to strict environmental covenants motivates operational upgrades, supply chain improvements, and emissions reductions, mitigating environmental risk and enhancing reputational capital.

An alternative rationale is that borrowers might engage in greenwashing, superficially improving environmental indicators without substantive change, to lower the cost of capital. Information asymmetry between firms and investors can incentivize such behavior (Marquis et al.2016). However, EP lending makes this unlikely: lenders conduct thorough monitoring through documentation review, audits, and enforcement of covenants, while the environmental investments required are costly, irreversible, and difficult to mimic (Sharfman and Fernando 2008). These features create strong disincentives for superficial compliance and reinforce the credibility of sustainability commitments.

3. Research Design

We identify the economic consequences of firms borrowing from EP lenders using a cohort-based, stacked difference-in-differences (DID) design. For each adoption event by one of the four large U.S. banks, we construct a cohort consisting of loans from the adopting bank (treatment lenders and treatment loans) and matched loans from lenders that adopt the EP later or never adopt (control lenders and control loans). We select loans from the control lenders based on the borrower's industry, the borrower's investment grade, and the loan initiation year. These cohorts are then stacked together.[11] This allows us to compare within-cohort changes in outcomes around the adoption date for treatment versus control loans, isolating the effect from bank- and time-specific confounds.

[11] For example, in the cohort corresponding to Citi's EP adoption, the treatment group comprises loans from Citi, while the control group includes loans from Bank of America, Wells Fargo, and J.P. Morgan prior to their EP adoption, as well as loans from banks that never adopt the EP.

Our baseline specification is:

$$Y = \beta_1 \, Treat \times Post + \beta_2 \, Controls + Cohort\text{-}Bank\ FE + Cohort\text{-}Year\ FE + Cohort\text{-}Industry\ FE \quad (1)$$

where Y denotes the outcome variable, which varies across tables to include loan terms and firm performance measures. *Treat* equals one if the loan is borrowed from the treatment lender and zero otherwise; *Post* equals one if the loan is initiated after the EP adoption date and zero otherwise. Specifically, *Treat* × *Post* equals one equals one for loans from an EP lender in the post-adoption period within a given cohort. The coefficient β_1 captures the change in Y from before to after EP adoption for treatment loans (first difference), relative to the corresponding change for control loans during the same period (second difference).

The set of control variables differs by outcome variable, with definitions provided in the Appendix. Cohort-bank fixed effects control for time-invariant differences across banks and absorb variation in *Treat*. Cohort-year fixed effects control for common time trends and absorb variation in *Post*. Allowing bank and year fixed effects to vary by cohort is more conservative than including generic bank and year fixed effects (Gormley and Matsa 2011, Gormley, Matsa, and Milbourn 2013). We also control for cohort-industry fixed effects based on 4-digit SIC codes. Standard errors are clustered at the firm level.

4. Sample Selection and Descriptive Statistics

4.1. Sample Selection

We begin by identifying the EP adoption dates for U.S. financial institutions. Four U.S. bank holding companies adopted the EP between 2003 and 2006: Citi (June 4, 2003), Bank of America (April 15, 2004), Wells Fargo (July 12, 2005), and J.P. Morgan (December 4, 2006).[12] Because adoption

[12] See https://equator-principles.com/members-reporting/. As of January 2023, in addition to the four focal U.S. EP lenders, the U.S. Export-Import Bank (Ex-Im Bank) joined the EP in 2011. We exclude Ex-Im Bank from our sample because, as an official export credit agency, it has minimal involvement in the U.S. syndicated loan market.

occurs at the bank holding company level, we aggregate lenders in the Loan Pricing Corporation's DealScan database to the holding company level using the link table by Schwert 2018. Together, these lenders accounted for 86.05% (69.37%) of loan transactions in DealScan from the event period 2003–2006 (the sample period 2001–2007).

We collect loan characteristics from DealScan for the sample period 2001–2007. Loan terms are reported at the facility level, with a package potentially containing multiple facilities. Following prior studies (e.g., Ivashina 2009), we use the loan package as the unit of analysis—selecting the facility with the largest amount in each package—because the lead lenders, and thus the EP effect, are identical across all facilities in a package.

Borrower information is obtained from Compustat using the DealScan-Compustat link table in Chava and Roberts 2008. We exclude loans to non-U.S. firms and to firms in the financial sector (4-digit SIC codes 6000–6999). After applying these filters and requiring the availability of both firm-level and loan-level control variables, the final sample comprises 17,643 loans.

Finally, to construct our measures of environmental covenants, we download credit agreements from the SEC's EDGAR database and follow the methodology in Choy et al. (2023). We manually review the covenant text to ensure accurate identification. Detailed procedures are provided in Online Appendix B.

4.2. Descriptive Statistics

Table 1 presents the descriptive statistics for the key variables, with definitions provided in the Appendix. All continuous variables are winsorized at the 1% and 99% levels to reduce the impact of outliers.

Our main independent variable is *Treat* × *Post*, defined within each cohort. *Treat* equals one if

the loan is from the treatment bank within a given cohort, and zero otherwise. In our sample, 3,764 out of 17,643 loans meet this criterion. *Post* equals one if the loan is initiated after the EP adoption date in that cohort, and zero otherwise; 8,456 loans fall into this category.

Firm-level control variables follow prior studies (e.g., Bharath, Dahiya, Saunders, and Srinivasan 2011, Chava 2014) and are measured as of the fiscal year prior to loan origination. These include: *Ln(MVE)*, the natural logarithm of the borrower's market value of equity; *Leverage*, the ratio of total debt to total assets (book values); *Market-to-Book*, the ratio of the market value of assets to book assets; *Profitability*, measured as EBITDA over total assets; and *Investment Grade*, an indicator equal to one if the firm has an investment-grade public debt rating from Standard & Poor's. In our sample, the average firm has a market value of equity of $4.322 billion, a leverage ratio of 0.290, a market-to-book ratio of 1.710, and a profitability of 0.104. Approximately 46.4% of firm-year observations are investment grade.

Loan-level variables are measured at origination. *Loan Spread* denotes the interest rate spread in basis points over LIBOR for each dollar drawn; *Loan Size* is the principal amount in millions of USD; *Maturity* is the contractual term in months; and *Collateral* is an indicator for whether the facility is secured. The average loan in our sample carries a spread of 213 basis points over LIBOR, a size of $302 million, a maturity of 41 months, and a 57.2% probability of being secured. All other variables in Table 1 are discussed below in the corresponding tests.

5. Results

5.1. The Effect of a Credible Commitment to Mitigating ESG Concerns on Loan Spreads

We begin by testing our prediction that borrowing from Equator Principles (EP) lenders reduces loan spreads. Table 2, Panel A reports the loan spread regressions. In column (1), we regress *Loan Spread* on *Treat* × *Post,* including only cohort-bank, cohort-year, and cohort-industry fixed effects.

Column (2) adds the full set of control variables. In both specifications, the coefficient on *Treat* × *Post* is significantly negative (coeff. = -45.121, $p < 1\%$; coeff. = -44.371, $p < 1\%$, respectively), indicating that loans from EP lenders carry lower spreads.[13] The coefficient of -45.121 implies an average decline of 21.2% relative to the sample mean of Loan Spread. This magnitude is comparable to Chava 2014, who finds that firms with high environmental concerns pay roughly 25 basis points (about 20%) more than firms with fewer concerns. The signs and significance of the control variables are consistent with prior literature. Overall, these results support our prediction that EP lending reduces borrowers' cost of debt.

A key identifying assumption of the stacked DID design is that, absent EP adoption, treatment and control lenders would follow parallel pre-trends in loan spreads. To examine this, we estimate a dynamic DID model with lead-lag terms, replacing the *Post* indicator with ten year dummies spanning *Treat Year-6* to *Treat Year-2* and *Year 0* (the effective year) to *Treat Year+2*. The omitted category is loans initiated in the year immediately preceding EP adoption (*Treat Year-1*). *Treat Year 0* equals one if a loan is initiated in the year after EP adoption, and zero otherwise; the other year indicators are defined analogously.

Table 2, Panel B presents the parallel trends test. The coefficients on *Treat Year-6* through *Treat Year-2* are statistically insignificant with and without controls, indicating no differential pre-trend in loan spreads between treatment and control lenders before EP adoption. This finding supports the validity of the parallel trends assumption.

One potential concern is borrower self-selection: firms with stronger ESG performance may disproportionately borrow from EP lenders, leading to lower loan spreads even without enhanced

[13] The results remain consistent when we cluster at the bank or industry level instead of the firm level (untabulated).

monitoring. We address this in two ways. First, we replace cohort-industry with cohort-borrower fixed effects to control for time-invariant borrower characteristics. Second, we restrict the sample to borrowers with loans from the treatment lender both before and after EP adoption, and to matched loans from control lenders. As shown in columns (1) and (2) of Table 3, the coefficients on *Treat* × *Post* remain significantly negative (coeff. = -19.613, $p < 10\%$; coeff. = -34.636, $p < 1\%$, respectively), mitigating concerns over self-selection.

We further investigate whether the reduction in loan spreads reflects efficiency gains from improved environmental risk monitoring after EP adoption. If so, these gains should be more pronounced when lenders have greater capacity to monitor or stronger incentives to pass savings to borrowers.

First, we examine heterogeneity by lenders' project finance experience. As discussed in the institutional background, the EP originated in project finance and are often integrated into banks' broader environmental risk management systems. We therefore expect the EP effect to be larger for lenders with project finance experience. We construct *Has Project Financing* equal to one if the lead lender originated any project finance loans within the three years prior to the contracting year. Column (1) of Table 4 supports this prediction: the coefficient on *Treat* × *Post* × *Dum* is negative and significant at the 5% level, indicating that EP adoption has a stronger effect on loan spreads when lenders have project finance experience.

Second, we test whether the effect is larger when lenders operate in more competitive loan markets, where competitive pressures increase the likelihood of passing efficiency gains to borrowers. Following Kang, Li, and Lin (2021), we compute the average Herfindahl-Hirschman Index (HHI) of outstanding loans in the state where borrowers are headquartered over the three years prior to the

contracting year as a proxy for loan market concentration. *High Competition in Loan Markets* equals one if the state-level average HHI over the prior three years is in the bottom quartile, and zero otherwise. Column (2) of Table 4 shows that *Treat* × *Post* × *Dum* is again negative and significant at the 5% level, consistent with larger loan spread reductions in more competitive markets.

Taken together, these results are consistent with EP adoption enhancing lenders' monitoring efficiency, with the associated cost savings shared with borrowers, particularly when monitoring capacity is high or competitive incentives are strong.

5.2. A Commitment Mechanism: The Effect of the Equator Principles on Environmental Covenants

A plausible mechanism through which borrowers commit to addressing environmental concerns is by agreeing to environmental covenants in loan contracts. Thus, we next examine whether loans from EP lenders contain more intensive environmental covenants.

We measure covenant intensity and type within the affirmative covenant section of credit agreements. The intensity variables are *Env Cov*, *Env Cov Length*, and *Num of Env Cov*. *Env Cov* indicates the presence of any environmental covenant. *Env Cov Length* is the word count of sentences or paragraphs containing the words "environment" or "hazardous." *Num of Env Cov* is the count of the three types of covenants based on Choy et al. 2023: (1) environmental action covenants, (2) environmental disclosure covenant, and (3) environmental audit covenants. *Env Action Cov*, *Env Disclosure Cov,* and *Env Audit Cov* are indicator variables for the presence of each type of environmental covenant.

In particular, *Env Cov Length* is hand-collected, while the other measures are generated via textual analysis. As shown in Online Appendix B, Panel A, the hand-collected data mitigate false positives and negatives from automated searches and capture variation in length within a covenant type.

Table 1 reports the summary statistics for environmental covenants.[14] On average, loans in our sample contain 256 words in the environmental covenant, and 61.5% of contracts include at least one environmental covenant. The mean number of covenants is 1.001. Among the covenant types, environmental disclosure covenants are most common (55.7%), followed by action covenants (28.3%) and audit covenants (16.1%).

Table 5 reports regression results. Panel A shows that the coefficient on *Treat* × *Post* is positive and statistically significant across *Env Cov*, *Env Cov Length*, and *Num of Env Cov* (coeff. = 0.188, $p < 0.05$; coeff. = 163.718, $p < 0.01$; coeff. = 0.544, $p < 0.01$, respectively). These findings support the prediction that borrowers are more likely to accept more intensive environmental covenants after their lenders adopt the EP.

Panel B examines covenant type. The coefficient on *Treat* × *Post* is again positive and significant for each type—*Env Action Cov* (coeff. = 0.166, $p < 0.05$), *Env Disclosure Cov* (coeff. = 0.239, $p < 0.01$), and *Env Audit Cov* (coeff. = 0.139, $p < 0.05$). These results suggest that EP lenders strengthen monitoring by increasing covenant intensity and by incorporating specific covenant types, enabling borrowers to credibly commit to improved environmental practices.

5.3. The Effect of a Credible Commitment to Mitigating ESG Concerns on Loan Renegotiations and Terminations, Conditional on Environmental Covenants

We next examine whether environmental covenants in loans from EP lenders are associated with a higher likelihood of renegotiation or early termination. Tighter covenants can shift ex post bargaining power toward lenders and increase renegotiation frequency (Huberman and Kahn 1988, Aghion et al. 1994, Li et al. 2016). Anecdotal evidence suggests banks may treat breaches of

[14] The sample decreases from 17,643 (Table 2) to 1,340 (Table 5) because the covenant analysis requires retrievable credit agreements from the SEC's EDGAR system with complete affirmative covenant sections; loans lacking an available agreement or with incomplete covenant text are excluded.

environmental covenants as equivalent to defaults, thereby justifying contract modifications or termination.[15]

We obtain renegotiation data from Dealscan. *Renegotiation* equals one if the loan is renegotiated within three years after its initiation date, and zero otherwise. We extract early termination events from Item 1.02 ("Termination of Material Agreement") disclosures in 8-K filings. *Termination* equals one if the loan is ended before its stated maturity date, and zero otherwise. In this sample, 33.2% of loans are renegotiated within three years of initiation, and 11.6% are terminated early. We expect the likelihood of renegotiation and termination to be higher when environmental covenants are present.

We estimate the regression in Equation (2):

$$\textit{Renegotiation or Termination} = \beta_1\, \textit{Env Cov} \times \textit{Treat} \times \textit{Post} + \beta_2\, \textit{Env Cov} \times \textit{Treat} + \beta_3\, \textit{Env Cov} \times \textit{Post} + \beta_4\, \textit{Treat} \times \textit{Post} + \beta_5\, \textit{Env Cov} + \beta_6\, \textit{Controls} + \textit{Cohort-Bank FE} + \textit{Cohort-Year FE} + \textit{Cohort-Industry FE} \quad (2)$$

where *Env Cov* × *Treat* × *Post*, the key independent variable, captures loans with environmental covenants made after the lender's EP adoption. We include cohort-bank, cohort-year and cohort-industry fixed effects.

Table 6 shows that the coefficient on *Env Cov* × *Treat* × *Post* is significantly positive for both outcomes (coeff. = 0.385, $p < 0.05$; coeff. = 0.236, $p < 0.05$).These patterns suggest that stricter environmental covenants more frequently trigger violation events, leading to renegotiations or early terminations.

[15] For example, see: https://www.sec.gov/Archives/edgar/data/1319439/000095014406009140/g03522exv10w27.txt. Specifically, Section 6.01 treats breaches of environmental covenants as a form of default because it includes Section 5.03 (j) about timely notice of environmental conditions.

5.4. The Effect of a Credible Commitment to Mitigating ESG Concerns on the Firm's Cost of Equity

Having shown that credible commitments reduce the cost of debt, we examine equity market responses. Equity holders do not participate in loan negotiations, making them relatively exogenous to the contracting process. We therefore test whether borrowing from EP lenders lowers borrowers' implied cost of equity if investors view these obligations—monitored by EP lenders—as credible ESG commitments.

We estimate the implied cost of equity in the year following the loan date using the stacked DID framework from Table 2. To account for the variation in assumptions in calculating the implied cost of equity capital, following Hail and Leuz (2009) and Chen, Chen, and Wei (2011), we construct *CoC_Median* and *CoC_Mean* as the median and mean, respectively, of four measures: *rCT* (Claus and Thomas 2001), *rGLS* (Gebhardt, Lee, and Swaminathan 2001), *rOJ* (Gode and Mohanram 2003), and *rMPEG* (Easton 2004).

Our controls are similar to those of Chen et al. (2011), including *Ln(MVE)*, *Leverage*, *Market-to-Book*, *Profitability*, *Investment Grade*, and additional factors that correlate with the implied cost of equity capital: momentum (*Momentum*), the firm's beta (*Beta*), analysts' forecast errors (*Forecast Errors*), and analysts' long-term growth forecasts (*Growth Forecasts*). Detailed variable definitions are in the Appendix. In addition, we include cohort-bank, cohort-year, and cohort-industry fixed effects.

In Table 7, the dependent variable is *CoC_Median* in column (1) and *CoC_Mean* in column (2)—the median and mean of the implied cost of equity estimates, respectively. This table reports negative and statistically significant *Treat* × *Post* coefficients for both specifications (coeff. = -0.004, $p < 0.01$; coeff. = -0.005, $p < 0.01$). Relative to the sample mean of 0.058, the -0.004 (-0.005) estimate implies a 6.9% (8.6%) lower cost of equity for borrowers from EP lenders, consistent with equity

investors recognizing the credibility of lender-monitored ESG commitments.[16]

5.5. The Effect of a Credible Commitment to Mitigating ESG Concerns on Environmental Performance

Finally, we test whether these commitments translate into improved environmental outcomes. Using Refinitiv Asset4 data, we examine performance in the year after the loan date within the same stacked DID design. We use two proxies: *Emission Performance* (0–100; commitment and efficiency in reducing emissions) and *Environmental Performance* (0–100; overall environmental score). Controls include *Ln(MVE)*, *Leverage*, *Market-to-Book*, *Profitability*, and *Investment Grade*, with cohort-bank, cohort-year, and cohort-industry fixed effects.

Table 8 shows positive and significant *Treat* × *Post* coefficients for both outcomes. For *Emission Performance*, the coefficient is 8.058 ($p < 0.01$); results are qualitatively similar for *Environmental Performance*. These findings indicate that borrowing from EP lenders is associated with measurable improvements in environmental performance, consistent with credible, monitored ESG commitments rather than purely symbolic adoption. [17]

6. Conclusion

Our study demonstrates that borrowers can make credible commitments to lowering their cost of debt and equity by engaging with lenders that adopt the Equator Principles (EP). Firms borrowing from EP lenders experience significant reductions in loan spreads, with the effect amplified when lenders have extensive project financing experience and when loan markets are more competitive.

[16] The sample decreases from 17,643 (Table 2) to 9,922 (Table 7) because estimating *CoC_Median* and *CoC_Mean* relies on analysts' forecasts from I/B/E/S (for *rOJ* and *rMPEG*); observations without I/B/E/S coverage are excluded.

[17] The sample decreases from 17,643 in Table 2 to 3,042 in Table 8 because the analysis requires a borrower match to the Asset4 database with non-missing post-loan-year scores; observations without an Asset4 match are excluded.

We also document a substantial increase in the intensity of environmental covenants across all covenant types as a key commitment mechanism. The higher rate of renegotiations and early loan terminations associated with these covenants indicates that they are actively enforced. As a result, borrowers not only face a lower cost of equity but also show improvements in environmental performance after obtaining EP loans.

Taken together, these findings suggest that EP lenders play an important quasi-regulatory role, using contract design and monitoring to align financial incentives with ESG objectives. This has implications for both policymakers and regulators, particularly in light of the SEC's recent climate-related disclosure requirements, and points to the need for further research on how mandatory disclosures interact with lender-driven ESG oversight to improve corporate environmental practices.

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Table 1: Summary statistics

This table presents the summary statistics. All variables are defined in the Appendix.

	N	Mean	Std	P25	P50	P75
Loan spread tests						
Loan Spread	17,643	213.127	156.154	100	175	275
Treat	17,643	0.213	0.410	0	0	0
Post	17,643	0.479	0.500	0	0	1
MVE (*in $ millions*)	17,643	4322.807	19826.940	201.963	718.388	2597.438
Ln(MVE)	17,643	6.547	1.953	5.308	6.577	7.862
Leverage	17,643	0.290	0.194	0.125	0.288	0.429
Market-to-Book	17,643	1.710	1.067	1.059	1.374	1.908
Profitability	17,643	0.104	0.116	0.066	0.111	0.169
Investment Grade	17,643	0.464	0.499	0	0	1
Loan Size (in $ millions)	17,643	302.437	729.677	50	140	300
Maturity	17,643	41.169	24.746	18	36	60
Collateral	17,643	0.572	0.495	0	1	1
Environmental covenant tests						
Env Cov	1,340	0.615	0.487	0	1	1
Env Cov Length	1,340	256.190	323.545	60	164	345.5
Num of Env Cov	1,340	1.001	0.997	0	1	2
Env Action Cov	1,340	0.283	0.451	0	0	1
Env Disclosure Cov	1,340	0.557	0.497	0	1	1
Env Audit Cov	1,340	0.161	0.368	0	0	0
Covenant outcome tests						
Renegotiation	1,340	0.332	0.471	0	0	1
Termination	1,340	0.116	0.320	0	0	0
Cost of equity tests						
CoC_Median	9,922	0.059	0.031	0.038	0.052	0.070
CoC_Mean	9,922	0.058	0.032	0.038	0.051	0.069
Momentum	9,922	0.008	0.502	-0.203	0.073	0.281
Beta	9,922	1.031	0.815	0.456	0.855	1.424
Forecast Errors	9,922	-0.016	0.081	-0.012	0	0.006
Growth Forecasts	9,922	0.157	0.175	0.070	0.125	0.175
Borrowers' Performance tests						
Emission Performance	3,042	44.508	26.182	25.690	39.530	64.040
Environmental Performance	3,042	43.977	30.965	18.010	25.250	77.380

Table 2: The effect of the Equator Principles on loan spreads

This table presents OLS regression results investigating the impact of the Equator Principles on loan spreads. The independent variable of interest is *Treat* × *Post. Treat* is an indicator variable that equals one for loans from treatment lenders (EP adopters) within a given cohort, and zero otherwise. *Post* is an indicator variable that equals one if the loan is initiated after the EP adoption date and zero otherwise. Panel A presents baseline regressions; Panel B reports dynamic difference-in-differences results. Definitions of other variables are in the Appendix. All regressions include the fixed effects noted in the table. Standard errors are clustered at the firm level, and t-statistics are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Baseline Results

Dependent Variables: *Loan Spread*	(1)	(2)
Treat × *Post*	-45.121***	-44.371***
	(-3.576)	(-3.813)
Ln(MVE)		-18.240***
		(-4.955)
Leverage		113.893***
		(3.457)
Market-to-Book		8.484*
		(1.705)
Profitability		-174.989***
		(-3.034)
Investment Grade		-15.538
		(-1.463)
Loan Size		-0.008**
		(-2.509)
Maturity		0.849***
		(4.860)
Collateral		66.272***
		(8.205)
Cohort-Bank FE	Y	Y
Cohort-Year FE	Y	Y
Cohort-Industry FE	Y	Y
Observations	17,643	17,643
Adj. R^2	0.440	0.570

Panel B: Year trend around the EP adoption date

Panel B estimates the dynamic effects of the Equator Principles on loan spreads around lenders' adoption. We include a set of mutually exclusive indicators for event years relative to adoption. *Treat Year 0* equals 1 if a loan from a treatment lender is initiated in the year following that lender's EP adoption date, and 0 otherwise; *Treat Year-1* is the omitted benchmark year. Indicators for other event years (e.g., *Treat Year-3*, *Treat Year-2*, *Treat Year+1*, *Treat Year+2*) are defined analogously.

Dependent Variables: *Loan Spread*	(1)	(2)
Treat Year-6	3.980	25.735
	(0.117)	(0.889)
Treat Year-5	40.481	33.052
	(1.480)	(1.380)
Treat Year-4	14.551	24.192
	(0.815)	(1.612)
Treat Year-3	3.980	13.232
	(0.260)	(1.062)
Treat Year-2	8.809	16.011
	(0.718)	(1.540)
Treat Year 0	-31.059**	-26.610**
	(-2.275)	(-2.131)
Treat Year+1	-37.736**	-39.010***
	(-2.402)	(-2.832)
Treat Year+2	-44.283**	-39.804***
	(-2.535)	(-2.599)
Treat Year+3	-62.499**	-43.535**
	(-2.546)	(-2.028)
Treat Year+4	-33.436	-7.955
	(-0.729)	(-0.191)
Control Variables	N	Y
Cohort-Bank FE	Y	Y
Cohort-Year FE	Y	Y
Cohort-Industry FE	Y	Y
Observations	17,643	17,643
Adj. R^2	0.440	0.570

Table 3: The effect of the Equator Principles on loan spreads: addressing borrowers' self-selection concerns

This table reports two tests that address borrower self-selection in estimating the impact of the Equator Principles on loan spreads. In the *whole-sample* specification, we include all loans from treatment and control banks over 2001–2007 and add cohort-borrower fixed effects. In the *balanced-sample* specification, we restrict to borrowers at treatment lenders with loans both before and after the adoption date and include matched loans from control banks. Column (1) includes cohort-bank, cohort-year, and cohort-borrower fixed effects; column (2) includes cohort-bank, cohort-year, and cohort-industry fixed effects. Standard errors are clustered at the firm level, and t-statistics are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variables: *Loan Spread*	(1)	(2)
Treat × Post	-19.613*	-34.636***
	(-1.845)	(-2.710)
Ln(MVE)	-5.050	-21.217***
	(-0.468)	(-4.479)
Leverage	51.059	145.137***
	(1.216)	(4.867)
Market-to-Book	-5.449	9.830
	(-0.628)	(1.381)
Profitability	-168.167	-249.082***
	(-1.536)	(-3.431)
Investment Grade	-48.339***	-18.426*
	(-3.289)	(-1.743)
Loan Size	-0.005*	-0.006
	(-1.741)	(-1.172)
Maturity	0.884***	0.843***
	(3.532)	(4.778)
Collateral	33.206***	56.761***
	(3.936)	(6.346)
Sample	Whole	Balanced
Cohort-Bank FE	Y	Y
Cohort-Year FE	Y	Y
Cohort-Industry FE		Y
Cohort-Borrower FE	Y	
Observations	16,113	7,482
Adj. R^2	0.836	0.680

Table 4: Cross-sectional tests

This table presents cross-sectional tests of the baseline specification (with the full control set from Table 2) using the dependent variable *Loan Spread*. In each column, observations are partitioned by the indicator *Dum*, and the model includes interactions of *Dum* with *Treat* × *Post*, all controls, and the fixed-effect indicators. In column (1), *Dum* equals one if the lead lender originated any project-finance loans during the three years preceding the contracting year and zero otherwise. In column (2), *Dum* equals one if the state-level average HHI of outstanding loan shares over the prior three years falls in the bottom quartile in the contracting year and zero otherwise. We include cohort-bank-*Dum*, cohort-year-*Dum*, and cohort-industry-*Dum* fixed effects. Standard errors are clustered at the firm level, and t-statistics are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variables: *Loan Spread*	(1)	(2)
Dum:	Has Project Financing	High Competition in Loan Markets
Treat × *Post* × *Dum*	-47.837**	-67.909**
	(-2.201)	(-2.437)
Treat × *Post*	-13.018	-24.149**
	(-0.956)	(-2.334)
Control Variables	Y	Y
Control Variables × *Dum*	Y	Y
Cohort-Bank-*Dum* FE	Y	Y
Cohort-Year-*Dum* FE	Y	Y
Cohort-Industry-*Dum* FE	Y	Y
Observations	17,643	17,643
Adj. R^2	0.605	0.637

Table 5: The effect of the Equator Principles on environmental covenants

This table presents OLS regression results investigating the impact of the Equator Principles on environmental covenants. The independent variable of interest is *Treat* × *Post. Treat* is an indicator variable that equals one for loans from treatment lenders (EP adopters) within a given cohort, and zero otherwise. *Post* is an indicator variable that equals one if the loan is initiated after the EP adoption date and zero otherwise. Control variables are defined in the Appendix. All regressions include cohort-bank, cohort-year, and cohort-industry fixed effects. Standard errors are clustered at the firm level, with t-statistics reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: The effect of the Equator Principles on the intensity of the environmental covenant

Panel A reports results for covenant intensity. The dependent variables are: (1) *Env Cov*, an indicator for the presence of at least one environmental covenant; (2) *Env Cov Length*, the word count of sentences or paragraphs containing the terms "environment" or "hazardous"; and (3) *Num of Env Cov*, the number of distinct environmental covenants.

Dependent Variables:	(1) *Env Cov*	(2) *Env Cov Length*	(3) *Num of Env Cov*
Treat × Post	0.188**	163.718***	0.544***
	(2.225)	(3.110)	(3.287)
Ln(MVE)	-0.045	-31.174*	-0.131***
	(-1.475)	(-1.801)	(-2.629)
Leverage	-0.090	-25.579	0.048
	(-0.489)	(-0.203)	(0.124)
Market-to-Book	0.078*	26.405	0.214***
	(1.669)	(1.561)	(3.139)
Profitability	-0.615	-382.814	-1.322
	(-1.315)	(-1.337)	(-1.546)
Investment Grade	0.037	23.873	0.048
	(0.492)	(0.489)	(0.285)
Loan Size	-0.000**	-0.001	-0.000
	(-2.192)	(-0.166)	(-1.249)
Maturity	0.000	0.961	0.003
	(0.208)	(1.556)	(0.942)
Collateral	0.123*	130.648***	0.321**
	(1.795)	(3.073)	(2.396)
Cohort-Bank FE	Y	Y	Y
Cohort-Year FE	Y	Y	Y
Cohort-Industry FE	Y	Y	Y
Observations	1,340	1,340	1,340
Adj. R^2	0.365	0.454	0.448

Panel B: The effect of the Equator Principles on the type of environmental covenant

Panel B reports results for covenant types. The dependent variables are: (1) *Env Action Cov*, an indicator for covenants requiring borrowers to remediate environmental pollution; (2) *Env Disclosure Cov*, an indicator for covenants requiring disclosure of material environmental information; and (3) *Env Audit Cov*, an indicator for covenants requiring the hiring of professionals (e.g., consultants) to evaluate environmental performance.

Dependent Variables:	(1) *Env Action Cov*	(2) *Env Disclosure Cov*	(3) *Env Audit Cov*
Treat × Post	0.166**	0.239***	0.139**
	(1.981)	(3.046)	(2.392)
Ln(MVE)	-0.037*	-0.049	-0.044*
	(-1.840)	(-1.546)	(-1.885)
Leverage	0.249	-0.178	-0.023
	(1.563)	(-0.888)	(-0.152)
Market-to-Book	0.151***	0.053	0.010
	(4.916)	(1.064)	(0.429)
Profitability	-1.337***	-0.202	0.218
	(-3.402)	(-0.461)	(0.685)
Investment Grade	0.092	-0.010	-0.033
	(1.254)	(-0.136)	(-0.467)
Loan Size	0.000	-0.000*	-0.000
	(0.078)	(-1.942)	(-0.063)
Maturity	0.001	0.000	0.001
	(0.715)	(0.300)	(1.527)
Collateral	0.100*	0.086	0.135**
	(1.792)	(1.234)	(2.396)
Cohort-Bank FE	Y	Y	Y
Cohort-Year FE	Y	Y	Y
Cohort-Industry FE	Y	Y	Y
Observations	1,340	1,340	1,340
Adj. R^2	0.417	0.399	0.398

Table 6: The effect of the Equator Principles on loan renegotiations and terminations

This table reports OLS estimates of the effect of the Equator Principles on the likelihood of loan renegotiation and early termination. The dependent variable is *Renegotiation* in column (1), an indicator for loans that are renegotiated within three years of initiation, and *Termination* in column (2), an indicator for loans that ends before its stated maturity as identified in Form 8-K Item 1.02. *Env Cov × Treat × Post*, the key independent variable, captures loans with environmental covenants made after the lender's EP adoption. Variable definitions are provided in the Appendix. All models include cohort-bank, cohort-year, and cohort-industry fixed effects. Standard errors are clustered at the firm level, and t-statistics are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variables:	(1) *Renegotiation*	(2) *Termination*
Env Cov × Treat × Post	0.385**	0.236**
	(2.342)	(2.082)
Env Cov × Treat	-0.402***	-0.004
	(-2.901)	(-0.055)
Env Cov× Post	-0.169	-0.208**
	(-1.126)	(-2.112)
Treat× Post	-0.136	-0.106
	(-1.016)	(-1.129)
Env Cov	0.265**	0.076
	(2.068)	(1.507)
Ln(MVE)	-0.033	0.035**
	(-1.280)	(2.042)
Leverage	0.081	-0.271**
	(0.397)	(-2.330)
Market-to-Book	-0.019	-0.012
	(-0.572)	(-0.632)
Profitability	0.476	-0.502*
	(1.318)	(-1.957)
Investment Grade	-0.022	-0.002
	(-0.288)	(-0.053)
Loan Size	0.000	-0.000
	(0.220)	(-0.510)
Maturity	0.005***	0.001*
	(3.077)	(1.925)
Collateral	-0.008	0.083*
	(-0.124)	(1.685)
Cohort-Bank FE	Y	Y
Cohort-Year FE	Y	Y
Cohort-Industry FE	Y	Y
Observations	1,340	1,340
Adj. R^2	0.321	0.211

Table 7: The effect of the Equator Principles on the cost of equity capital

This table reports the effect of the Equator Principles on borrowers' implied cost of equity in the year following loan initiation. The dependent variable is *CoC_Median* in column (1) and *CoC_Mean* in column (2): the median and mean, respectively, of four implied cost-of-equity estimates—*rCT* (Claus and Thomas 2001), *rGLS* (Gebhardt et al. 2001), *rOJ* (Gode and Mohanram 2003, Ohlson and Juettner-Nauroth 2005), and *rMPEG* (Easton 2004). The independent variable of interest is *Treat × Post. Treat* is an indicator variable that equals one for loans from treatment lenders (EP adopters) within a given cohort, and zero otherwise. *Post* is an indicator variable that equals one if the loan is initiated after the EP adoption date and zero otherwise. Variable definitions are in the Appendix. All specifications include cohort-bank, cohort-year, and cohort-industry fixed effects, with standard errors clustered by firm. T-statistics are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variables:	(1) *CoC_Median*	(2) *CoC_Mean*
Treat × Post	-0.004***	-0.005***
	(0.001)	(0.001)
Ln(MVE)	-0.003***	-0.003***
	(0.000)	(0.000)
Leverage	0.032***	0.031***
	(0.002)	(0.002)
Market to Book	-0.004***	-0.004***
	(0.000)	(0.000)
Profitability	0.038***	0.037***
	(0.004)	(0.004)
Investment Grade	-0.005***	-0.005***
	(0.001)	(0.001)
Momentum	-0.016***	-0.016***
	(0.001)	(0.001)
Beta	0.000	-0.001
	(0.000)	(0.000)
Forecast Errors	-0.054***	-0.059***
	(0.004)	(0.004)
Growth Forecasts	0.027***	0.026***
	(0.002)	(0.002)
Cohort-Bank FE	Y	Y
Cohort-Year FE	Y	Y
Cohort-Industry FE	Y	Y
Observations	9,922	9,922
Adj. R^2	0.629	0.627

Table 8: The effect of the Equator Principles on the firm's environmental performance

This table reports the impact of the Equator Principles on borrowers' environmental performance in the year following loan initiation. The dependent variables are *Emission Performance* (column (1)) and *Environmental Performance* (column (2)), both Refinitiv Asset4 scores scaled 0–100; *Emission Performance* captures commitment and efficiency in reducing emissions, while *Environmental Performance* is the overall environmental score. The independent variable of interest is *Treat* × *Post. Treat* is an indicator variable that equals one for loans from treatment lenders (EP adopters) within a given cohort, and zero otherwise. *Post* is an indicator variable that equals one if the loan is initiated after the EP adoption date and zero otherwise. Variable definitions are provided in the Appendix. All specifications include cohort-bank, cohort-year, and cohort-industry fixed effects, with standard errors clustered by firm. T-statistics are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variables:	(1) *Emission Performance*	(2) *Environmental Performance*
Treat × *Post*	8.058***	9.673**
	(2.596)	(2.322)
Ln(MVE)	13.745***	16.588***
	(10.944)	(10.624)
Leverage	11.091	7.282
	(1.094)	(0.549)
Market-to-Book	-5.034***	-6.508***
	(-3.506)	(-3.675)
Profitability	-2.409	-28.526**
	(-0.299)	(-2.411)
Investment Grade	-19.696***	-14.892*
	(-3.502)	(-1.894)
Cohort-Bank FE	Y	Y
Cohort-Year FE	Y	Y
Cohort-Industry FE	Y	Y
Observations	3,042	3,042
Adj. R^2	0.633	0.693

Appendix: Definitions of the Variables

Variables	Definitions
Loan spread tests and controls (Table 2, 3, 4; Source: Compustat, DealScan)	
Loan Spread	The interest the borrower pays in basis points over the LIBOR for each dollar drawn down.
Treat	An indicator variable that equals one for loans from treatment lenders (EP adopters) within a given cohort, and zero otherwise. In each cohort, we match loans from the treatment lender to loans from control lenders that are not yet treated or never treated based on industry, loan initiation year, and investment grade.
Post	An indicator variable that equals one if the loan is initiated after the EP adoption date and zero otherwise. The EP adoption date of the focal treatment lender is assigned as a pseudo date to the matched control loans.
Ln(MVE)	The natural logarithm of a borrower's market value of equity. We report the unlogged value in Table 1 for the summary statistics.
Leverage	The ratio of the book value of total debt to the book value of total assets.
Market-to-Book	The ratio of the market value of equity to the book value of assets.
Profitability	The ratio of EBITDA to total assets.
Investment Grade	An indicator variable that equals one if the firm has public debt rated investment grade from Standard & Poor's and zero otherwise.
Loan size	The loan amount in $millions.
Maturity	The loan maturity in months.
Collateral	An indicator variable that equals one if the facility is secured and zero otherwise.
Has Project Financing	An indicator variable that equals one when the lead lender has project financing loans within three years before the contracting year and zero otherwise.
High Competition in Loan Markets	An indicator variable that equals one if the average Herfindahl-Hirschman Index (HHI) of the loans outstanding over the three years before the contracting year within a specific state is in the bottom quartile and zero otherwise.
Environmental covenant tests (Table 5; Source: self-constructed from raw loan contracts)	
Env Cov	An indicator variable that equals one if any type of environmental covenant is contained in the affirmative covenant section and zero otherwise. There are three types of covenants: environmental action covenants, environmental disclosure covenants, and environmental audit covenants (Choy et al. 2023).
Env Cov Length	The number of words within the sentences or paragraphs that contain "environment" or "hazardous" in the affirmative covenant section.
Num of Env Cov	The number of environmental covenants (action/disclosure/audit) contained in the affirmative covenant section.
Env Action Cov	An indicator variable for covenants requiring borrowers to remediate environmental pollution
Env Disclosure Cov	An indicator for covenants requiring disclosure of material environmental information.
Env Audit Cov	An indicator for covenants requiring the hiring of professionals (e.g., consultants) to evaluate environmental performance.
Covenant outcome tests (Table 6; Source: Dealscan, 8-K filing, raw contracts)	
Renegotiation	An indicator variable that equals one if the loan is renegotiated within three years after loan initiation, and zero otherwise.
Termination	An indicator variable that equals one if the loan is terminated before the stated maturity date, and zero otherwise.
Cost of equity capital tests (Table 7; Source: Compustat, CRSP, I/B/E/S)	
CoC_Median	*CoC_Median*—the median of four implied cost-of-equity estimates, *rCT*, *rGLS*, *rOJ*, and *rMPEG*. Each estimate solves for the discount rate r via numerical approximation with tolerance < 10^{-6}. Claus and Thomas (2001) *(rCT):* $$P_t = B_t + \sum_{i=1}^{5} \frac{[FEPS_{t+i} - r \times B_{t+i-1}]}{(1+r)^i} + \frac{[FEPS_{t+5} - r \times B_{t+4}] \times (1+g_L)}{(r-g_L)(1+r)^5}$$

	Gebhardt, Lee, and Swaminathan (2001) *(rGLS):* $$P_t = B_t + \sum_{i=1}^{T-1} \frac{[FROE_{t+i} - r] \times B_{t+i-1}}{(1+r)^i} + \frac{[FROE_{t+T} - r] \times B_{t+T-1,}}{(1+r)^{T-1} r}$$ Gode and Mohanram (2003), Ohlson and Juettner-Nauroth (2005) *(rOJ):* $$P_t = \frac{EPS_{t+1}}{r} + \frac{EPS_{t+1}(g_S - r(1-d))}{r(r-g_L)}$$ Easton (2004) *(rMPEG, modified PEG):* $$P_t = \frac{EPS_{t+1}}{r} + \frac{EPS_{t+1}(g_S - r(1-d))}{r(r-g_L)}$$ *Where:* P_t: stock price at the end of month +4 after the most recent fiscal year-end, scaled by $(1+r)^{(4/12)}$. B_t: book value of equity at the most recent fiscal year-end; B_{t+i} evolves via clean surplus, $B_{t+i} = B_{t+i-1} + EPS_{t+i-1} - DPS_{t+i-1}$. EPS_{t+i}: analysts' consensus earnings per share for year $t+i-1$. DPS_{t+i-1}: dividends per share for year $t+i-1$; $DPS_{t+i-1} = EPS_{t+i-1} \times d$. d: dividend-payout ratio from the most recent fiscal year, winsorized to [0,1]. $FROE_{t+i}$: forecast return on equity; assumed to decline linearly from year 4 to year T toward the equilibrium ROE (10-year industry median). $FEPS_{t+i}$: forecast earnings used in the *rCT* residual-income expression. g_L: long-run growth rate, defined as the risk-free rate (10-year Treasury yield) minus 3%. g_s: short-term growth, the average of growth implied by EPS_{t+1} and EPS_{t+2} and the analysts' long-term growth forecast; requires $EPS_{t+2} > 0$ and $EPS_{t+1} > 0$. r: implied cost of equity to be solved from each model. T: forecast horizon, $T = 12$ years.
CoC_Mean	The mean of the cost of equity estimates per Claus and Thomas (2001), Gebhardt et al. (2001), Easton (2004), and Ohlson and Juettner-Nauroth (2005).
Momentum	The natural logarithm of the compounded returns over the 12 months before the month when the cost of equity is calculated.
Beta	The market beta estimated for each firm-year observation by regressing monthly returns on the value-weighted market returns. We use 60 monthly observations before the month when the cost of capital is calculated.
Forecast Error	The analysts' forecast error of the upcoming annual earnings, defined as actual EPS from I/B/E/S minus the analysts' forecasted EPS used to calculate the cost of equity, scaled by the price in the month when the cost of capital is calculated. When the I/B/E/S actual EPS is missing, we use actual EPS adjusted for the stock split from Compustat.
Growth Forecasts	The analysts' forecast of the long-term growth rate. If missing, we use EPS_{t+3} / EPS_{t+2} - 1, where EPS_{t+3} and EPS_{t+2} are analysts' earnings forecasts for year t+3 and t+2 at the end of month t+4 after the most recent fiscal year-end.
Environmental performance tests (Table 8; Source: Asset4)	
Emission Performance	The emission category score that ranges between 0 and 100. It measures a firm's commitment and efficiency in reducing environmental emissions in its production and operational processes.
Environmental Performance	The environmental score that ranges between 0 and 100. It measures a firm's environmental performance.